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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/723,396
Filing Date: November 26, 2003
Appellant(s): LIN, PING-WHA

February 19, 2008

Michael S. Gzybowski
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/26/07 appealing from the Office action mailed 10/2/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

U.S. Patent Application S/N 10/255,216 (under appeal).

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct, except for:

Appellant's brief presents arguments relating to the objection to the specification.

This issue relates to petitionable subject matter under 37 CFR 1.181 and not to appealable subject matter. See MPEP § 1002 and § 1201.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

The Washington Times, 3/24/89, page A5, article by D. Braaten.

The Wall Street Journal, 4/26/89, page B4, article by D. Stipp.

The New York Times, 5/3/89, pp A1, A22, article by M. Browne

J. Electroanal. Chem. vol 266, (1989) pp 437-450, Kreysa et al.

Nature, vol. 340, 8/17/89, pp 525-530, Lewis et al.

The Washington Post, 5/2/89, pp A1, A7, article by P. Hilts.

Horanyi, G., "Some Basic Electrochemistry and the Cold Nuclear Fusion of Deuterium," Journal of Radioanalytical Nuclear Chemistry Letters, Vol. 137, No. 1, p. 23-28.

J. of Nucl. Sci. and Tech., vol. 26, No. 7, (July 1989), pp 729-732, Ohashi et al

Science, vol. 246, No. 4931, 11/10/89, pp 793-796, Miskelly et al.

UCRL-101583, 7/89, Chapline, pp 1-9

Associated Press, Panel Opposes Cold Fusion Efforts, The Washington Post, p. A14, 7/13/89

ORNL/FTR-3341, 7/31/89, pp 2-15, Cooke

Zeitschrift fur Phys. A.-Atomic Nuclei, vol. 333, (1989) pp 319-320, Alber et al

J. Radioanal. Nucl. Chem., Letters, vol. 137, No. 1, (8/21/89), pp 9-16, Faller et al.

Physics Letters B, vol. 228, No. 1, 9/7/89, pp 163-166, Cribier et al.

Solid State Communications, vol. 72, No. 4, (1989) pp 309-313, Hajdas et al.

Solid State Communications, vol. 72, No. 1, (1989) pp 53-57, Shani et al.

Physical Review Letters, vol. 62, No. 25, 6/19/89, pp 2929-2932, Ziegler et al.

Physical Review Letters, vol. 63, No. 18, 10/30/89, pp 1926-1929, Price et al.

Zeitschrift fur Phys. B-Condensed Matter, vol. 76, No. 2, pp 141-142, (1989), Schrieder

Associated Press, Physicist: Utah Cold Fusion Gear Doesn't Work, The Washington Post, p.A3, 3/29/90

Nature, vol. 344, 3/29/90, pp 401-405, Salamon et al

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9.1 The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide a written description of the invention and as failing to teach how to make and/or use the invention, i.e., failing to provide an enabling disclosure.

The invention is directed to producing electrical energy by "cold nuclear fusion" from a gas stream containing a hydrogen source (e.g., see the Specification at page 7, lines 5+, page 15, line 5, page 18, page 32, lines 13+, etc).

As set forth more fully below, the disclosure does not contain reputable evidence that is sufficient to support any allegations or claims that the invention produces "exothermic nuclear reactions" or "excess heat", that any allegations or claims of the production of excess heat due to nuclear and/or chemical reactions are valid and reproducible, nor that the invention as disclosed is capable of operating as indicated and capable of providing the intended output.

This concept of producing nuclear reactions and excess heat by "cold fusion" was, in general, publicly announced by Fleischmann and Pons (hereinafter referred to as "F and P") on March 23, 1989 (see the 3/24/89 article by D. Braaten). Appellant's

invention is thus, at most, no more than a variation of the cold fusion concept or system set forth by F and P. Merely proposing a new or different theory to account for the alleged nuclear reaction products (including some large amounts of generated energy) in appellant's system, wherein a hydrogen gas source has been utilized, does not change such system into non-cold fusion system.

In what follows, the Examiner is guided by the U.S. Federal Court of Appeals decision, *In re Dash*, No. 04-1145, 2004 WL2829039 (Fed. Cir. Dec.10, 2004). The Dash patent application discloses a method for generating heat energy using an electrolytic cell having a palladium cathode and an inert anode. The electrolyte used in the cell principally contains heavy water. Dash reported measurements of heat produced by his apparatus. The Examiner of the Dash application rejected it on enablement and utility grounds. The Board sustained the Dash Examiner's rejection and the Court affirmed the Board's decision (see *Dash*, *3)

The Court construed the Dash claims to require the production of excess heat energy and to be directed to a method of achieving "cold fusion". The Court stated, "[g]iven the scientific community's considerable doubt regarding the utility of "cold fusion" processes, we hold that the examiner established a *prima facie* case of lack of utility and enablement." (see *Dash*, C. "Analysis").

In response to Dash's argument that the evidence that supported the Examiner's *prima facie* case is invalid because it does not concern the invention as claimed and because the documents cited are anecdotal or not peer reviewed, the Court said, that it knew of "no rule that forbids the Examiner from relying on related technology, anecdotal information, or sources that are not peer reviewed to establish inoperability." The Court further stated that "[w]hile it may be ideal for the Examiner to offer peer-reviewed data on precisely the claimed information to establish such a case, such extreme certainty is

not required." (see *Dash*, *3) (Note: The Court decision on this matter is equally applicable to the references cited in the instant case by the examiner of the instant application).

As set forth more fully below, this "cold fusion" concept of producing nuclear reactions, including energy generation (known in the art as "excess heat"), is still no more than just an unproven concept.

Subsequent to the announcement of this cold fusion concept by F and P, many laboratories have attempted to confirm the results of F and P.

The results of these attempts at confirmation were primarily negative and even of the few initial positive results, these were generally either retracted or shown to be in error by subsequent experimenters (e.g., see the article by Stipp in the Wall Street Journal and the article by Browne in The New York Times (particularly page A22)).

The general consensus by those skilled in the art and working at these various laboratories is that the assertions by F and P were based on experimental errors (e.g., see The New York Times article by Browne, Kreysa et al., Lewis et al., Hilts, Horanyi, Ohashi et al., MisKelly et al. and Chapline).

Note for example, that Kreysa et al. on page 440 state that, "We have repeated the heat balance measurements more than 10 times and never found a significant heat excess within the accuracy limits of $\pm 5\%$." Kreysa et al. also refer to various possible sources of error, which could lead to erroneous conclusion that nuclear reactions and excess heat were produced.

Hilts states that the MIT experiments failed to produce any of the excess heat reported by the Utah group.

Lewis et al. state in the summary on page 525 that they found no evidence of excess enthalpy in their experiments and, they refer to various possible sources of error

which could lead to the erroneous conclusion that nuclear reactions and excess heat were produced (note pages 528-530).

Both Hilts and Lewis et al. indicate that in any determination of excess heat, one must determine the total amount of energy produced (as heat and chemical energy) integrated over the whole period of cell operation, versus the total energy input.

It was also the general consensus by those skilled in the art and working at these various laboratories that there is no reputable evidence of neutron, gamma ray, tritium or helium production to support the allegation or claim that nuclear reactions are taking place, nor is there any reputable evidence to support the allegation or claim of excess heat production. See for example (in addition to the above listed references) page A14 of the 7/13/89 edition of The Washington Post, Cooke, Alber et al., Faller et al, Cribier et al., Hajdas et al., Shani et al., Ziegler et al., Price et al., Schrieder et al., and pages A3 of the 3/29/90 edition of The Washington Post.

Of particular interest is page A3 of the 3/29/90 edition of The Washington Post that refers to the negative findings of a physicist who had tested Pon's own cold fusion apparatus for nuclear output (for a more complete analysis of said "negative findings", note the article by Salamon et al.). Also of interest in this respect is the Cooke reference which, on pages 4 and 5, refers to the attempts at Harwell to obtain "cold fusion" and that Fleischmann (of F and P) had requested help from Harwell in verifying the cold fusion claims. Said page 5 also indicates that data was collected in Frascatti type (i.e. gaseous) experiments.

The last paragraph on said page 5 states:

"After three months of around-the-clock work at a cost of over a half million dollars, the project was terminated on June 15. This program is believed to be one of the most comprehensive worldwide with as many as 30 cells operating at a time and over 100 different experiments performed. The final results of this monumental effort in *the words*

of the official press release was, "In none of these experiments was there any evidence of fusion taking place under electrochemical conditions". It should also be added that there was no evidence of excess heat generated by any of their cells." (Underlining added).

Appellant's specification contains assumptions and speculation as to how and in what manner, his invention will operate. However, appellant has presented no reputable factual evidence to support his assumptions and speculation regarding a reproducible, sustainable cold fusion and low temperature reaction reactions.

As discussed below, Appellant makes conclusions that nuclear reactions are occurring in his system, which conclusions are neither substantiated by unbiased sources nor based on any nuclear measurements. In some instances, Appellant himself admits that he is unsure that nuclear reactions are present, e.g., by such statement as, "rapid increase of the temperature of the gas flow is apparently due to nuclear reactions" (see page 26 of the specification).

Note in this respect that the examiner (as set forth above) has presented documentary evidence that there are no operative cold fusion systems that actually produce excess heat, neutrons, or any other nuclear reaction product.

The disclosure is thus insufficient and non-enabling as to exactly what all is necessary to actually present a reproducible, sustainable cold fusion and low temperature nuclear reaction, and, as to what would cause such reactions to actually take place in the appellant's system.

On page 5, lines 1+ (also page 22, last paragraph, and page 23, last sentence), Appellant describes pilot plant studies during the course of the claimed invention, which included a vertically fired combustor (VFC) through which air was continuously forced. During a post idle operation, when the burners were turned off so that no external heat was added to the system, it was observed that the temperature of the flowing air

consistently rose. Appellant asserts that “[t]his air flow temperature increase of such large magnitude and long duration following the initial input of heat from the burners clearly indicates that nuclear reactions were present in VFC.” Underlining provided.

There is neither an adequate description nor enabling disclosure as to how and in what manner Appellant could categorically conclude that such temperature increase was due to nuclear reactions. For example, what specific nuclear measurements (e.g., detection and measurement of nuclear particles and their energies) were performed to provide a basis for the conclusion?

On page 6, lines 2+, Appellant asserts that, “[i]t was determined that the water vapor in the air was initially converted to hydrogen and oxygen by the rapid heating, which further lead to nuclear reactions, involving transformation of hydrogen ions into protons.” Underlining provided.

There is neither an adequate description nor enabling disclosure as to how and in what manner Appellant established that: a) protons were generated; and b) if indeed such protons were generated, that they came from nuclear transformation of hydrogen ions.

On page 7, lines 2+, Appellant asserts that, “[b]y applying high time rate of temperature increase to a gas flow, nuclear reactions of the fluid can be promoted, and cold nuclear fusion becomes a reality.” Underlining provided.

There is neither an adequate description nor enabling disclosure as to how and in what manner such the alleged “nuclear reactions” and “cold nuclear fusion” were established. For example, what specific nuclear measurements were performed to provide a basis for this conclusion?

On page 9, last paragraph, Appellant asserts, “... net heat is immediately transformed to enthalpy, which is the sum of the internal energy of its components and

pressure of the gas." Underlining provided.

It is a notorious scientific fact that enthalpy is the sum of the internal energy of system components and the *product of pressure and volume*. There is neither an adequate description nor enabling disclosure as to how and in what manner equations 3-5 can properly provide a measure of the net heat of the system when that volume of the gas is not considered.

On page 15, lines 1+, On page 7, lines 2+, Appellant asserts:

"So it can be concluded that when a mixed material is subjected to a heat flux rate, the total heat flux rate is distributed among molecules, atoms or nuclei, and electrons. The average energy in each particle group increases with time, and when the energy of particle (molecule, atom, nuclei or electron) reaches its activation level, reaction takes place. The reaction can be atom-splitting reaction, a molecular built-up reaction or a nuclear reaction such as cold fusion."

There is neither an adequate description nor enabling disclosure as to: a) how and in what manner said heat flux rate is distributed among the molecules, atoms or nuclei, and electrons, e.g., what percentage goes to each one; b) what specific nuclear measurements were performed to provide a basis for the conclusion that atom-splitting reaction or cold fusion is achieved.

On page 23, last two lines, Appellant asserts, "[s]uch a high magnitude of temperature increase verifies that nuclear reactions played an important role." Underlining provided.

There is neither an adequate description nor enabling disclosure as to how and in what manner Appellant is able to conclude that the high magnitude of temperature increase is categorically due to nuclear reactions. Also, there is no disclosure of what the term, "important role" encompasses (e.g., contribution of more than 50%, 70%, 90% or what?).

On page 26, lines 12+, Appellant asserts, “[t]he continuously rapid increase of the temperature of the gas flow is apparently due to nuclear reactions.” Underlining provided. (Examiner’s note: This statement is a clear admission by the Appellant that he is unsure whether the observed condition is due to nuclear reactions). There is neither an adequate description nor enabling disclosure as to whether the increase in gas temperature was verified to be due to nuclear reactions.

On page 32, lines 20+, Appellant asserts, “[t]he heat released from nuclear reaction enables the temperature to remain at a high level in the basic nuclear fusion unit 316 and induces further nuclear reactions in the incoming fresh air.” Underlining provided.

There is neither an adequate description nor enabling disclosure as to how and it what manner Appellant is able to conclude that: a) nuclear reaction is the source of heat that allows the temperature in unit 316 to remain at a high level; b) nuclear reactions are induced in the incoming fresh air, e.g., what measurements were performed to categorically determine that incoming fresh air is undergoing nuclear reactions?

On page 33, lines 6+, Appellant asserts, “[t]he heated gas passes through the heat reservoir, 315, where a large portion of the heat in the flow is retained, and the nuclear fusion reactions in the flowing gas due to rapid heating produce additional heat which enhances further nuclear reactions continuously and rapidly in the flow.” Underlining provided.

There is neither an adequate description nor enabling disclosure as to how and it what manner it was concluded that: a) a “large portion” of the heat is retained in the reservoir, and how this so-called large portion was determined; b); b) further nuclear reactions are continuously and rapidly being generated in the flow.

On page 37, lines 18+, Appellant asserts, “[t]he heat from nuclear fusion in the plasma flow is continuously transmitted out from the system by heat exchangers. There is neither an adequate description nor enabling disclosure as to how and it what manner it was concluded that nuclear fusion occurs in said plasma flow.

Appellant's specification contains assumptions and speculation as to how and in what manner his invention will operate (i.e., the so-called Lin's Theory of Flux on page 9+ of the Specification). Indeed, Appellant appears to be basing the operativeness of his invention on various approximations, estimations, assumptions, etc. set forth, for example, on said page 9+ of the Specification. It can be said that one could manipulate any number of approximations, estimations, and assumptions to come up with a result which would allegedly “work” in theory. However, Appellant has presented no reputable factual evidence to support his assumptions and speculation, that his invention is operative.

The specific issues raised by the Examiner above are clear examples of lack of credible support for Appellant's assumptions and speculation. Without reputable evidence to the contrary, the accepted scientific community theory is presumed correct. The disclosure is insufficient in failing to set forth the underlying assumptions for Appellant's theory, as well as Appellant's appraisal of the degree of validity of said assumptions.

The specification (see page 22+) appears to refer to tests or experiments wherein excess heat was generated after system shutdown, thereby allegedly attesting that nuclear fusion reactions occur. However, these indications or allegations are not sufficient to overcome the numerous teachings of skilled artisans (set forth above by the Examiner) that the allegations of attainment of said nuclear fusion reactions in a cold fusion system (whether electrochemical, plasma, gaseous, etc.) are reproducible or

even obtainable. It is not clear from the information set forth in the Specification, that when all possible sources of error are taken into account, that the Appellant would be able to show positive results or that the alleged positive result do not fall within the limits of experimental error, or, that the alleged positive results are no more than a misinterpretation of experimental data. For example, the Examiner has cited several documents that deal with sources of error in cold fusion systems.

It is not seen that the specification discloses any particular structure, etc., which is unique to Appellant's system and which makes Appellant's cold fusion operative whereas the systems disclosed in the above referenced numerous teachings of skilled artisans, were not operative.

There is therefore no reputable evidence of record to support the assumption that useful amounts of excess energy/fusion reactions, etc. will be produced, such that the invention would find use in electricity production, as claimed, nor that the invention would operate as indicated.

There is neither an adequate description nor enabling disclosure of the parameters of a specific operative embodiment of the invention, including: the exact size, dimensions and composition (including degree of impurity and the impurities present) of each of the materials utilized in the operation of the claimed invent; initial fuel quantity/quality, etc.; assembly of apparatus (e.g., vacuum, shielding, etc.), calibration of instrumentation during and after each experiment, etc.

It is noted that the specification appears to set forth some parameters; however, the specification does not set forth an operative embodiment wherein the specific values of each of the parameters are recited.

The disclosure is insufficient in regard to the energy requires to initiate and produce excess heat production by fusion reactions, i.e., the energy required prior to

shutdown of the system. In addition, the specification is insufficient in identifying the time required to produce said reactions.

As set forth above, the examiner has presented evidence showing that in cold fusion systems, the claims of excess heat (as well as of other nuclear reaction products), are not reproducible or even obtainable. It consequently must follow that the claims of nuclear reactions are not reproducible or even obtainable with appellant's invention. While appellant may have set forth theoretical concepts, it is well known in the cold fusion field that theory and reality have a habit of not coinciding. There is no evidence to indicate that the appellant has so succeeded where others have failed, in arriving at an operative cold fusion system, i.e. that he has progressed his system beyond the point of an unproven theory or concept which still requires an undue amount of experimentation to enable the artisan to make and use the inventive system for its indicated purpose. This view is also considered supported by the failure to set forth a full example of the specific parameters of an operative embodiment. One cannot rely on the skill in the art for the selection of the proper quantitative values to present an operative cold fusion system, since those in the art do not know what would be these values. See Bank v. Rauland Corp., 64 U.S.P.Q. 93; /n re Corneil et al., 145 U.S.P.Q. 697.

To reiterate briefly, the Examiner has presented evidence, that neither the situation of excess "heat" nor or other, nuclear reaction products, can reasonably be expected to be reproducible or even obtainable with the present invention.

There is no reputable evidence of record that would overcome the experimental showings in the above listed references, disproving this concept of "cold fusion".

Again, there is no evidence to indicate that the appellant has so succeeded where others have failed, in arriving at an operative system that produces nuclear

fusion, i.e., that he has progressed his system beyond the point of an unproven theory or concept which still requires an undue amount of experimentation to enable the artisan to make and use the invention for its indicated purpose.

It is thus considered that the Examiner (for the reasons set forth above) has set forth a reasonable and sufficient basis for challenging the adequacy of the disclosure. The statute requires the appellant itself to inform, not to direct others to find out for themselves; *In re Gardner et al*, 166 U.S.P.Q. 138, *In re Scarborough*, 182 U.S.P.Q.298. Note that the disclosure must enable a person skilled in the art to practice the invention without having to design structure not shown to be readily available in the art; *In re Hirsch*, 131 U.S.P.Q. 198.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9.2 Claims 1-9, 21-26 and 28-30 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed is inoperative and therefore lacks utility.

The reasons that the invention as disclosed is inoperative are the same as the reasons set forth in section 9.1 above as to why the specification is objected to and the reasons set forth in section 9.1 above are accordingly incorporated herein.

There is no reputable evidence of record to indicate the invention has been reduced to the point of providing in current available form, an operative cold fusion system. The invention is not considered as meeting the requirements of 35 U.S.C. 101 as being "useful". Note in this respect, Page A14 of the 7/13/89 edition of The Washington Post which indicates that there is no convincing evidence that the

"phenomena attributed to cold fusion would produce useful sources of energy".

The Appellant at best, has set forth what may be considered a concept or an object of scientific research. However, it has been held that such does not present a utility within the meaning of 35 U.S.C. 101. See *Brenner v. Manson*, 148 U.S.P.Q. 689.

Additionally, it is well established that whereas here, the utility of the claimed invention is based upon allegations that border on the incredible or allegations that would not be readily accepted by a substantial portion of the scientific community, sufficient substantiating evidence of operability must be submitted by appellant. Note *In re Houghton*, 167 U.S.P.Q. 687 (CCPA 1970); *In re Ferens*, 163 U.S.P.Q. 609 (CCPA 1969); *Puharich v. Brenner*, 162 U.S.P.Q. 136 (CA DC 1969); *In re Pottier*, 152 U.S.P.Q. 407 (CCPA 1967); *In re Ruskin*, 148 U.S.P.Q. 221 (CCPA 1966); *In re Citron*, 139 U.S.P.Q. 516 (CCPA 1963); and *In re Novak*, 134 U.S.P.Q. 335 (CCPA 1962).

9.3 Claims 1-9, 21-26 and 28-30 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The reasons that the invention as disclosed is not enabling are the same as the reasons set forth in section 9.1 above as to why the specification is objected to and the reasons set forth in section 9.1 above are accordingly incorporated herein.

(10) Response to Argument

10.1 The examiner would like to highlight the fact that he has raised issues of lack of adequate description and/or enabling disclosure on specific sections of the specification (pages 5, 6, 7, 9, 15, 22, 23, 26, 32, 33, and 37 of the specification, as discussed in section 9.1 above), which appellant DID NOT address in his Brief. These issues go to the heart of the operability of the claimed invention for the admitted purpose of generating cold nuclear fusion reactions.

10.2 Appellant alleges, in support of his claim that his system produces sustained nuclear chain reaction, that he:

"discovered that rapid heating of ambient air can be used to initiate an exothermic reaction that can be sustained merely by supplying an ambient or room temperature fed [sic] of air that contains water molecules. During the sustained reaction, the water molecules are consumed, indicating that hydrogen atoms have been dissociated from the water molecules and thereafter involved in nuclear reactions which produce free electrons that can be captured using magnets and conductive conductors." Underlining provided. See page 8 of the Brief.

The examiner disagrees.

First, appellant claims that he transforms hydrogen atoms into protons and free electrons, which means that his system produces plasma. A review of the specification reveals that the highest temperature reached by the air in the chamber is 840 °F. It is a notorious scientific fact that to create hydrogen plasma requires a temperature at least an order of magnitude higher than appellant's case, and even much higher temperatures to sustain this plasma to compensate for inherent temperature losses. In appellant's case, the feed material (i.e., air) contains impurities in addition to the hydrogen. These impurities would result in an even higher temperature to create and

sustain the plasma. Appellant has not provided any objective evidence that his system has produced, much less sustain, plasma.

Second, the appellant's claimed nuclear reactions are proton-proton fusions, which are nuclear fusion processes that fuel the Sun and other stars. These proton-proton fusions occur at temperatures in the order of tens of millions of deg Kelvin. Appellant's alleged highest temperature of 840 °F is many orders of magnitude lower than the required temperature for these reactions to occur.

Third, appellant alleges that water molecules are consumed, indicating that hydrogen atoms have been involved in nuclear reactions. However, appellant has not provided any showing of any chemical analysis performed on the incoming and outgoing air to provide objective evidence that the so-called water reduction is not due to other causes, e.g., water molecules adhering to the walls of the combustor, or just simply evaporating!

Fourth, nuclear reactions inherently result in the liberation of radioactive particles, e.g., gamma rays, neutrons, and alpha particles. Assuming for the sake of argument that appellant's system produced sustained nuclear reactions, which they did not, then workers at the so-called accredited laboratory in Research Triangle, N.C., would have been exposed to levels of radiation that are much higher than background radiation. Federal regulations require that workers exposed to radiation be monitored for their doses. There is no showing in the specification of the radiation doses measured in the facility and the accumulated worker radiation doses during the experiments.

10.3 Appellant traversed the rejection of claims under 35 U.S.C.112, first paragraph on the grounds that:

- a. *he "has provided in the specification working examples of producing sustained exothermic reactions which were conducted by a reputable research facility in Research Triangle Park in North Carolina."*
- b. *his disclosure, "provides one skilled in the art with sufficient information to repeat appellant's testing procedure, and the description of providing magnets and conductors to collect freed electrons provides one skilled in the art with sufficient information to collect and use the freed electrons."*
- c. *[t]he present invention, as set forth in the claims, merely involves collecting the free or freed electrons for use in developing electrical potential."*

The examiner disagrees.

As to arguments a) and b), the claims are directed to a method of generating electricity by nuclear reactions (e.g., see claim 1). Additionally, said electricity generation is disclosed as due to cold nuclear fusion (e.g., see the specification at pages 7 and 15).

As the examiner repeatedly raised in the objection to the specification, appellant has not shown that these so-called exothermic reactions are due to nuclear reactions, much less nuclear fusions. Also, appellant has not shown that any nuclear measurements were performed to provide objective evidence that these reactions are nuclear reactions. For example, reaction products such as gamma rays or neutrons that accompany nuclear reactions have neither been measured nor detected in the experiments. In fact, the specification is filled with conjectures, vague statements, sweeping generalizations, and unfounded conclusions that nuclear reactions are taking place in the experiments, as exemplified by the following:

Art Unit: 3663

"By applying high time rate of temperature increase to a gas flow, nuclear reactions can be promoted, and cold nuclear fusion has become a reality." Underlining provided. See page 7 of the specification. (Examiner's comment: How high is high to "promote" the reactions ? Also, "can" denotes "possibility" NOT "certainty")

"The acceleration of nuclei in the dynamic condition can lead to nuclear reactions." See page 14 of the Specification. (Examiner's comment: What value of acceleration will lead to nuclear reactions. Again appellant is unsure that acceleration leads to nuclear reactions).

"The reaction can be atom-splitting reaction, a molecular buildup reaction or a nuclear reaction such as cold fusion. (Examiner's comment: Appellant admits that the reaction may NOT be a nuclear reaction but a molecular build-up! Thus, appellant has not categorically established that the reaction is a nuclear reaction because other reactions have not been positively ruled out).

"The continuously rapid increase of the temperature of the gas flow is apparently due to nuclear reactions." (Examiner's comment: The dictionary defines "apparent" as "suggests appearance that may or may not be borne out by more rigorous examination of greater knowledge." Thus, appellant's conclusion is nothing more than a guess).

As to the argument c) that appellant's invention pertains to collecting freed electrons to generate electricity, this statement clearly proves that the reactions occurring in his apparatus are NOT nuclear reactions, much less nuclear fusions. Electrons are atomic particles and NOT nuclear particles. See also section 10.2 below.

10.4 Appellant further argues in his traverse of the 35 U.S.C. 112, first paragraph rejection that:

"What appellant has determined, and proven to the acceptance of the scientific community is that when heat energy is injected rapidly into a system containing chemical species such as water, the activities of particles (molecules, atoms or nuclei, and electrons) are increased: the particles are accelerated; frequencies and amplitudes of electron and atomic vibrations in a molecule increase; average kinetic energy of the particles increases; atomic bonds are ruptured, and electrons are caused to leave their orbits"

The reference to atomic bonds and electrons orbiting the atom is clear admission that the sustained heat energy that the appellant “observed” is the result of processes and particles (i.e., electrons) occurring OUTSIDE (not inside) the nucleus. Whatever physical phenomenon the appellant is attributing to the cause of electricity generation is happening at a molecular level and NOT a nuclear (or nucleus) level where fusion reactions occur!

10.5 Appellant also argues that:

“The examiner has made repeated reference to the fact that the appellant has not conducted actual ‘nuclear measurements.’ The Examiner’s position overlooks that, in addition to direct evidence, science often relies upon inference, which appellant has reasonably done in the present situation.”

The examiner disagrees.

An inference, to be considered valid, must be based on established or proven fact, information or data. Appellant has not provided any objective evidence that his observations and conclusion, i.e., sustained heat from cold fusion that produces the electricity from his invention, are not due to misinterpretations of results, instrumentation errors and/or experimental errors. Also, consistent with normal scientific/technical practice, as proponent for a novel concept of generating electricity via nuclear fusion of heated hydrogen gas, appellant has to show that alternative explanations (e.g., molecular or atomic reactions) are not valid and the only possible explanation for their observation is due to nuclear reactions. Appellant has failed to do this.

10.6 Appellant argues that "calculations provided in the specification confirm that the only possibility of generating the heating that was witnessed was due to the formation of protons and free electrons." The examiner disagrees.

Calculations inherently involve assumptions, approximations, estimations, etc. It can be said that one can manipulate any number of assumptions, estimations and approximations to come up with a result that would allegedly "work" in theory.

10.7 Appellant also argues that:

"the inventor has been invited as a frequent speaker at both national and international conferences worldwide on nuclear and alternative energies";

"appellant has applied for corresponding patents in China and the UK which have been approved";

"accordingly, the scientific community has accepted Lin's Theory of Flux together with how it is applied in the instant invention to produce heat ad electrical energy."

The examiner disagrees.

Many of the cold fusion advocates have also been invited to conferences similar to those cited by the appellant but nonetheless observations by these proponents regarding cold fusion have not been validated to date, according to the US Department of Energy.

Also, appellant is applying for a patent in the United States, and his application is subject to the statutes and regulations in the U.S. The issues raised by the examiner is not the same as those that may have raised by the examiner in other countries.

As to the acceptance by the so-called scientific community of said theory, this is nothing more than a conclusory statement that has no probative value.

10.8 Appellant argues that his cold fusion apparatus is different from the Fleischmann and Pons (F and P) electrochemical cold fusion apparatus. The examiner disagrees.

There are numerous citations in the specification that appellant's system is a chemical reaction apparatus as in F and P's case. For example, appellant's invention is a chemical reaction system using hydrogen as source material. In fact, one embodiment that the appellant discloses uses the same liquid form of the hydrogen source, similar to F and P. Said embodiment uses water that is dissociated to H₂ and O₂, the H₂ nuclei are allegedly made to collide to cause fusion reactions (see paragraph bridging pages 34 and 35 of the Specification).

Additionally, appellant's cold fusion process is subject to the same experimental errors, instrumentation errors and misinterpretation of results as F and P. As stated earlier by the examiner, merely proposing a new or different theory to account for the alleged nuclear reaction products does not change appellant's system into non-cold fusion system.

10.9 Appellant objects to the examiner's statement in final Office action that the "testing conducted by appellant at Research Triangle Park was biased." The examiner disagrees. The tests performed at said facility was performed by a contractor, i.e., Arcadis Geraghity & Miller (AGM), in close consultation with the inventor (see page 19+ of the Specification). These tests cannot be considered as constituting testing by an independent source.

Independent, unbiased sources must be solicited when the utility of a claimed invention is based upon allegations that border on the incredible or allegations that would not readily accepted by the scientific community, as in appellant's cold nuclear fusion system or by others. Note *In re Houghton*, 167 USPQ 687 (CCPA 1970), *In re Ferens*, 163 USPQ 609, *Puharich v. Brenner*, 162 USPQ 136 (CA DC 1969), *In re Pottier*, 153 USPQ 407 (CCPA 1967), *In re Ruskin*, 148 USPQ 221 (CCPA 1966), *In re Citron*, 139 USPQ 516 (CCPA 1963), and *In re Novak*, 134 USPQ 335 (CCPA 1962).

"Reproducibility" must go beyond one's own laboratory. One must produce a set of instructions, a recipe, which would enable anyone in their own independent laboratory, to produce the same results. If reproducibility only occurs in one's own laboratory, errors (such as systematic errors) would be suspect.

10.10 Appellant did not set forth any arguments regarding the rejection of claims under 35 U.S.C. 101, which are separate from and distinct from the arguments traversing the rejection under 35 U.S.C. 112, first paragraphs. The latter arguments has been addressed by the examiner in sections 10.1-10.5 above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Art Unit: 3663

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Ricardo J. Palabrica/, PhD
Primary Examiner

Conferees:

Meredith Petravick /mcp/

Jack Keith/J. W. K./

Supervisory Patent Examiner, Art Unit 3663